Universal Latent Workstation (ULW)
Version 6.4.1 Supplemental Instructions

October 2015

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Contents

ULW INSTRUCTIONS:

NGI INFORMATION:

ULW INSTRUCTIONS

1. Comparison Tool Displays Incorrect First Candidate Image

In Comparison Tool (CT), there are random times when the first image displayed in the right-side candidate window list is not the tenprint image that belongs to that UCN candidate highlighted. This could inadvertently lead to an erroneous decision.

Workaround:

A. Ensure the candidate list in CT is sorted by rank.

B. For each SRL, the examiner **must** force CT to "refresh" itself by clicking on a different candidate (e.g., candidate #2) and then re-selecting candidate #1. After doing so, the correct candidate #1 image will always be displayed thereafter. Additionally, users may consider implementing policy whereby the second candidate is always selected and/or compared prior to the first candidate.

NOTE: This behavior has only been observed when opening comparisons in CT via the Transaction Manager (TM).

2. Enable NGI Functionality

The following four requirements **must** be met prior to the FBI enabling your ORI for Next Generation Identification (NGI) Increment 3 functionality:

1. **EBTS version 9.3 plus errata (or greater) compliance** - additional EBTS fields are returned with the NGI latent responses (e.g., 2.2033 CNL field). **NOTE**: Agencies updating their information technology infrastructure or transitioning from older EFTS/EBTS standards are always encouraged to program to the most current EBTS version available.

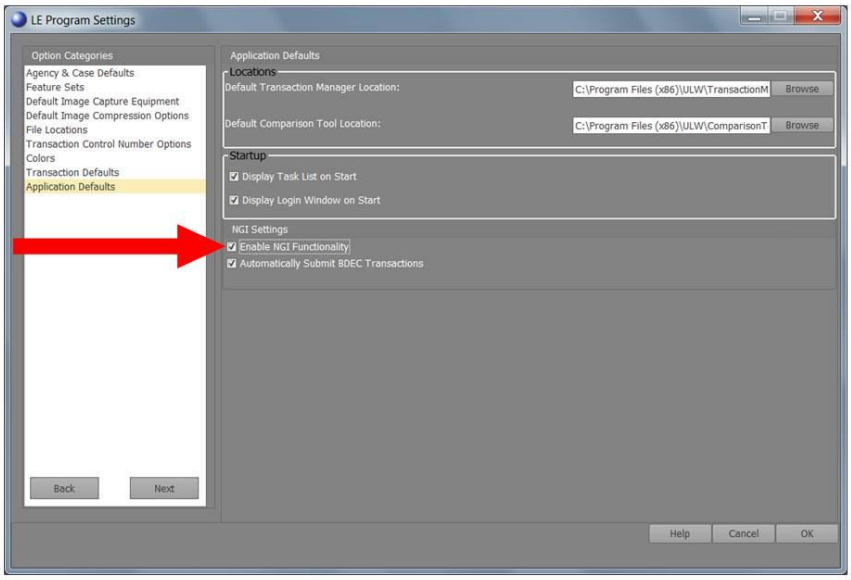
2. **ORI Authorization** - if you are a Direct Latent Connectivity (DLC) agency, the FBI will enable your specific ORI. If you're not a DLC agency, the FBI must enable your conduit's ORI.

3. **Type-15 image capable** - ability to handle any transaction containing palms.

4. **50MB incoming email file size** - NGI responses are much larger than the average IAFIS 2MB responses, therefore, your agency's mail management system should be able to accept 50MB minimum per file/message.

If the FBI has formally transitioned your agency or conduit to take advantage of NGI INC-3 services/capabilities, the ULW software's settings must be configured properly:

A. Close all ULW applications
B. Open LE (suggest using the ADMIN login)
C. Go to File > Program Settings > Application Defaults
D. Check the box next to "Enable NGI Functionality"
E. Click OK
F. Close the Latent Editor



If not yet transitioned to NGI, the ULW software should be used in legacy mode by confirming this box is unchecked.

3. Lost Setting Instructions for ULW

A. Close all ULW applications.

B. Open LE, go to "Program Settings" and ensure all settings are correct.
- Make certain the correct Controlling Agency Identifier (CRI) is entered because it's automatically deleted each time the ULW software is upgraded.

C. Copy the **latent-settings.xml** file from the folder in the "From" column for your Operating System and replace the existing file in the "To" folder.
- These folders may be hidden; either change your settings or simply type the path in the address field.
- If the user doesn't have permission to modify the "To" folder, this step will require the assistance of an IT Administrator.

Windows	From	To
XP	C:\Documents and Settings\<*windowsloginid*>\Local Settings\Application Data\ULW\ LatentEditor\	C:\program files\ULW\
7 Vista 8	C:\Users\<*windowsloginid*>\AppData\Local\ULW\ LatentEditor\	(64 bit) C:\program files (x86)\ULW\ OR (32 it) C:\program files\ULW\

D. After the user performs the above step, their default settings will be specific to that organization/user so when ULW reloads the settings file (in those rare cases), it will be loading the values specific to the organization/user.

E. If users are also losing settings from CT and TM, please contact < IST@LEO.GOV > for assistance.

4. Request Features Record Errors

If users select the 2.095 RFR option on distal submissions, they may receive the following Latent Transaction Errors (ERRLs) or receive error messages upon opening responses in the ULW.

ERRLs:

- L0013 ERRL - A general logic error was detected that is not currently defined
- R0002 ERRL - Deployed NGI Latent Friction Ridge (LFR) system limitations that could fail (Internal Segment Error)

Error Messages when opening responses in the ULW:

- Latent Editor: "Number of minutiae and fingerprint image records do not correspond; cannot save"
- Comparison Tool: "Failed to open EftsFile: [path to file] for the following reason: Failed to open "EbtsFile: [path to file]"
- Comparison Tool: Opens the CT but there is no information and the image blocks are grey.
- Incoming Folder: The transaction may fail to automatically import into the TM. To verify this is the issue, double-click on the file. You will receive one of the responses above.

Workaround:

- Users should uncheck the Request Features Record (2.095 RFR) and resubmit the transaction. If using **ULW v 6.3.6**, before submitting, the RFR should be unchecked for each transaction.

    - LE - Text Fields 2.095
    - TM - File Penetration Tool

- Settings: in **ULW v6.4.1**, the RFR option can be set to "Never" within the LE Program Settings > Transaction Defaults.

- When performing latent searches using any palm FGP, including "Unknown" codes 18 and 20, the Request Features Record (2.095 RFR) box should always be unchecked.

- If you continue to receive error messages after 2.095 RFR has been unchecked, please contact < IST@LEO.GOV > for assistance.

5. E0002 ERRL

- **"Element T4_FGP with value of 20 contains invalid data"**

    If the user wants to search NGI palms, one of the following workarounds can be used (**NOTE**: When performing latent searches using any palm FGP, including "Unknown" codes 18 and 20, the Request Features Record (2.095 RFR) box should always be unchecked).

    - Record must be changed from Type-4 to Type-13

    - If the original image (e.g., bmp, tif, or jpg) is still available, create a completely new Type-13 file to search NGI palms

    - If the original image cannot be located, a completely new Type-13 file must be created from the original Type-4 image. The following steps can be used to export the image embedded in the pre-existing Type-4 image file:

        A. In LE, click **Open/Import EBTS File** button
        B. Navigate to the vendor's file
        C. Click **YES** for Create Feature Set
        D. File > Export Image > Export Original Image (or CTRL+E)
        E. Save File on desktop
        F. Create a new search using this image

- **"Element T9_ROI_ROP- Too many vertices, more than 99 vertices"**

  Workaround: Redraw the ROI but let go of the mouse button while the mouse is still ON the image. By doing this, ULW will reduce the ROI to 99 vertices (i.e., corners or intersections of a geometric shape). Resubmit the transaction.

6. L0013 ERRL - A general logic error was detected that is not currently defined

It is recommended that when this message is returned, please:

- Make certain the Request Features Record (2.095 RFR) box is not checked in the search file.

- Examine the submitted image's size. If the image size does not meet required minimums, it is recommended adding white space and resubmitting to NGI.

  - **LFFS**: Minimum sizes are 384 pixels x 384 pixels for 1000 ppi and 192 pixels x 192 pixels for 500 ppi

  - **LFIS**: minimum sizes are 250 pixels x 250 pixels for 1000 ppi and 125 pixels x 125 pixels for 500 ppi

If the same message is received a second time, please report the error to the Latent and Forensic Support Unit < IST@LEO.GOV > for additional research.

7. L0014 - ULD failure when submitting Cloned Searches

"Cannot perform the ULF delete request for ContributorCaseIdentificationData [……] because the subject is not present in the ULF."

To pass NGI validation, the Contributor Case Identifier Extension (2.011 CIX) value of the Unsolved Latent Delete (ULD) must match the CIX value of the Unsolved Latent File (ULF) deposit. When it does not exactly match, the ULD fails.

Workarounds:

- If you receive an error message for your ULD, generate the ULD from the cloned file as usual, open the ULD file in LE, change the CIX in the ULD to mirror the CIX in the cloned file (Record 2b), and submit.

  or

- Do **not** add a cloned search file to the ULF. Instead, use the original search to deposit into the ULF.

8. R0002 ERRL - Deployed NGI Latent Friction Ridge (LFR) system limitations that could fail

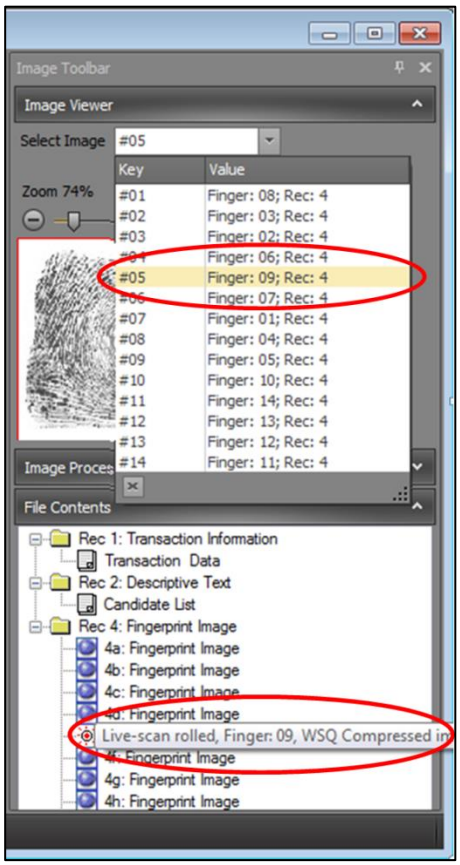
Users should ensure submission values for Native Scanning Resolution (1.011 NSR) and Nominal Transmitting Resolution (1.012 NTR) match. If not, errors will be returned.

Workaround:

A. If transaction fails, a new transaction will need to be created
B. Ensure image being imported is at the proper grayscale, 1:1 scale, and its resolution is either 500 ppi or 1000 ppi
C. Import image
D. Submit as normal

9. IRR & ULM Fingers display out of order in Latent Editor

The LE will display fingers in the order in which NGI returns them - which is not always in sequentially ascending order. There is no way to manually re-arrange the fingers in LE. See below example:



To sort the images in ascending/descending order, users must open the Search Results-Latent (SRL) file in CT and click on "Finger #" at the top of the column. To review a tenprint card displaying fingers located in the proper sequential order, go to File > View Ten-Print Card.

10. Display Name of Designated Repository (NDR = 2.098)

For NGI enabled users, NGI will specify from which repository (e.g., criminal, civil, ULF, etc.) a candidate was generated. This will assist NGI enabled users with distinguishing FBI Universal Control Numbers (UCN) candidates. The NDR field will contain the repository's numerical designation such as:

1 - Criminal Repository
2 - Civil Repository
3 - ULF Repository
etc.

Transaction Manager:

- **A.** Click the "SRL Preview" tab
- **B.** Right click in one of the headers in the candidate list and select "Show Column Chooser" from the list
- **C.** Select "Repository Name" in the Column Chooser window, drag it to the header area of the data grid, and release the mouse to place it

Latent Editor:

- **A.** Make sure the SRL window is active (selected)
- **B.** Click on the "Text Fields" tab
- **C.** Select "Rec 02, 1: Subject Description"
- **D.** Scroll down to "Name of Designated Repository"

or

- **A.** Make sure the SRL window is active (selected)
- **B.** Click on the "File" tab
- **C.** Click on "Summary Output"
- **D.** Scroll down to find the NDR value (NDR can be located within the Candidate Investigative List [CNL = 2.2033] as subfield "I")

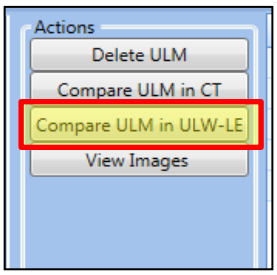
Comparison Tool:

- **A.** Right click in one of the headers in the candidate list and select "Column Chooser" from the list
- **B.** Select "NDR" in the Column Chooser window, drag it to the header area of the data grid, and release the mouse to place it

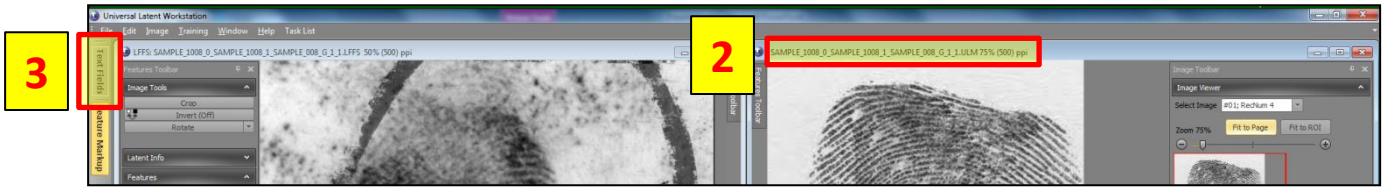
ULM notification responses will not provide NDR feedback; therefore, users are encouraged to contact the Latent and Forensic Support Unit < IST@LEO.GOV > for assistance.

11. Opening Unsolved Latent Match (ULM) Files via Transaction Manager

1. In TM, highlight the row containing the ULM you would like to compare. Click on the ULM Review tab at the bottom-left of the screen. Within the Actions block, open by clicking on Compare ULM in ULW-LE.

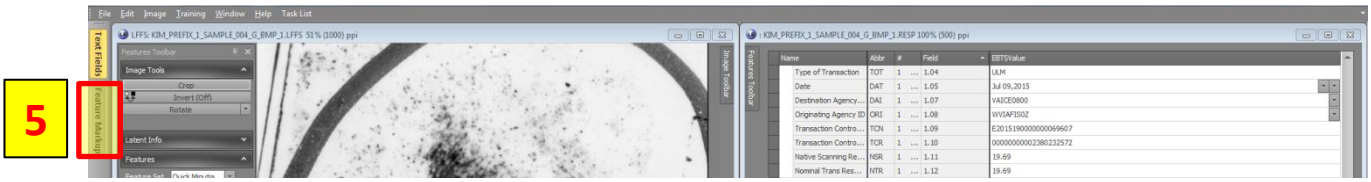


2. Select the known tenprint by clicking on the toolbar above the image.
3. On the left side of the screen, click on the **Text Fields** tab.



4. Scroll down through the text fields to locate Rec 02, 1: Descriptive Text, Finger Position FGP field 2.074. The number in this field indicates which finger the NGI designated as a potential match. In this case, the finger number is "2 {Right Index}".

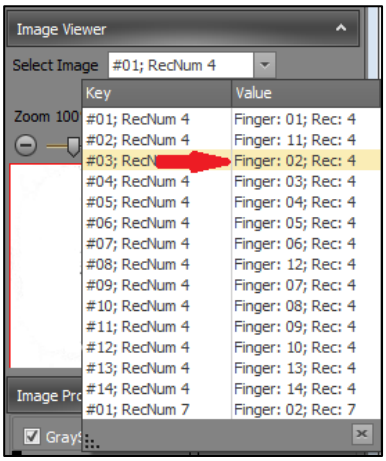
5. Select Feature Markup on the left side of the screen to display the tenprint image again.



6. Click on the Image Toolbar Tab to the right to expand the Image Toolbar. From the drop down next to "Select Image" in Image Viewer, select the finger number displayed in the FGP field 2.074.

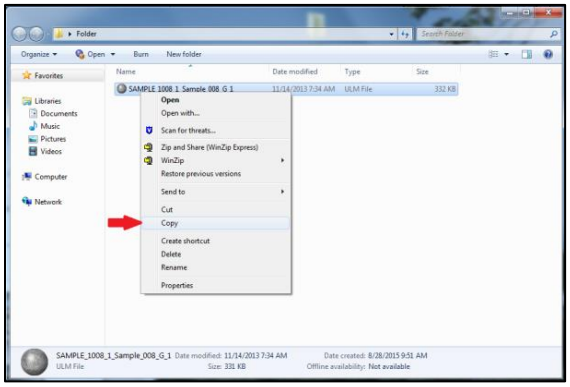
7. Once the correct finger is displayed, the examiner can begin their comparison.

NOTE NGI does not always return a tenprint card's fingers in numerical order. For instance, in the below Latent Editor example, finger #2 is third on the list. The examiner must ensure they're choosing the correct finger number from the list.

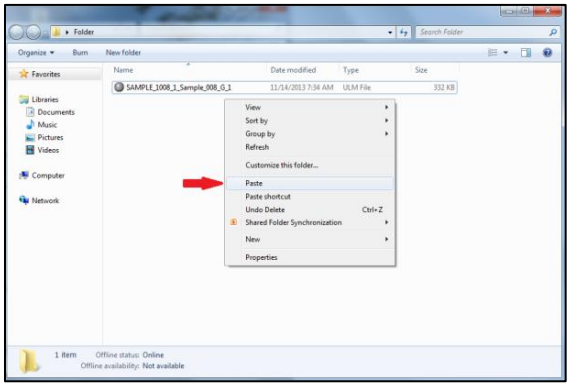


12. Opening Unsolved Latent Match (ULM) Files without Transaction Manager

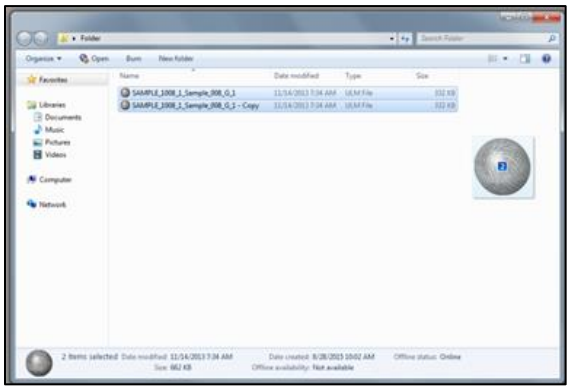
A. Open Latent Editor (LE).
B. Right click on the ULM file you would like to compare and click Copy.

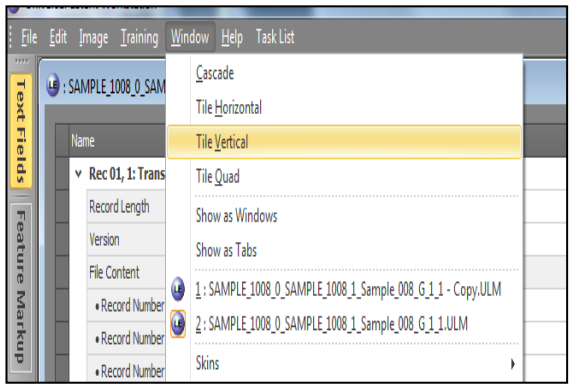


C. Right click on an area near the original ULM and click Paste.



D. Hold down the Ctrl key and click on the original ULM file and the Copy.
E. Drag and drop both files into LE. Hold down the Ctrl key and click on the original ULM file and then Copy. Drag and drop both files into LE.
F. Click on Window in the horizontal tool bar and select Tile Vertical. Select Feature Markup on the left side of the screen to display the tenprint images.





G. Follow steps detailed in the previous ULM comparison instructions (i.e., **Opening Unsolved Latent Match (ULM) Files via Transaction Manager**).

13. Printing from within Comparison Tool

When printing from CT, users have experienced an issue whereby the top 1/8 inch or more of the page is cut off - sometimes also including the Case ID number.

Workaround:

- The size of the printed image can be modified by selecting "File" > "Print Preview" > "Scale" (7th from the left on the toolbar) > decrease the "Adjust To" to approximately 90% (+/-).

- From "Print Preview", export as a PDF to the desktop. Open the PDF and print.

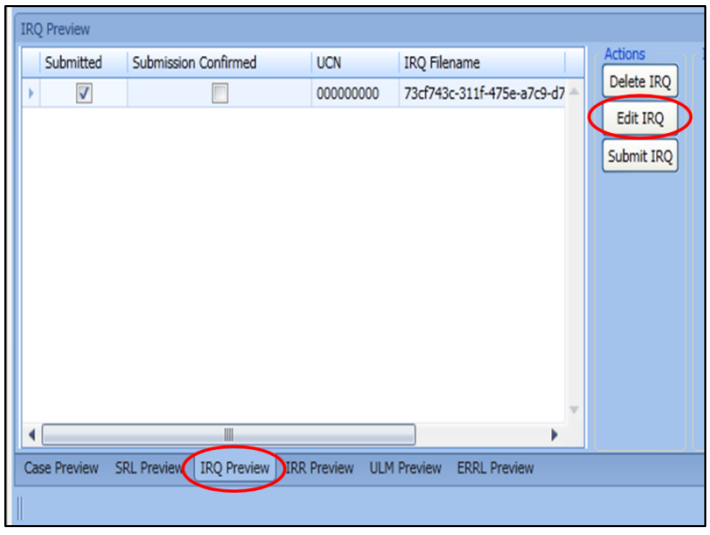
14. IRQ Resolutions

- At this time, Image Request Responses (IRRs) may not return for Image Retrieval Requests (IRQs) that have Request Features Record (2.095 RFR) checked. If you received an Image Summary Response (ISR) and no IRR, you need to uncheck RFR and resubmit.

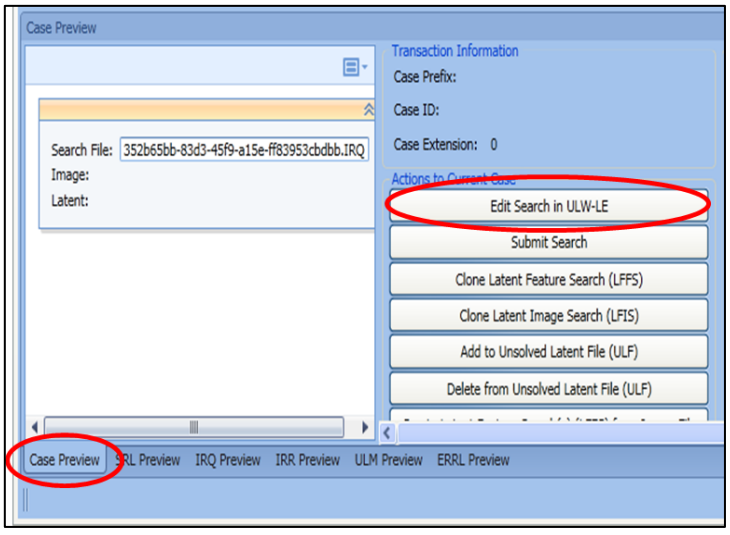
- If you requested palmprints, but received tenprints in your IRR, you need to change the Image Type to **3-Palmprint**.

A. Locate the transaction and select the appropriate Edit button

If associated with a case:



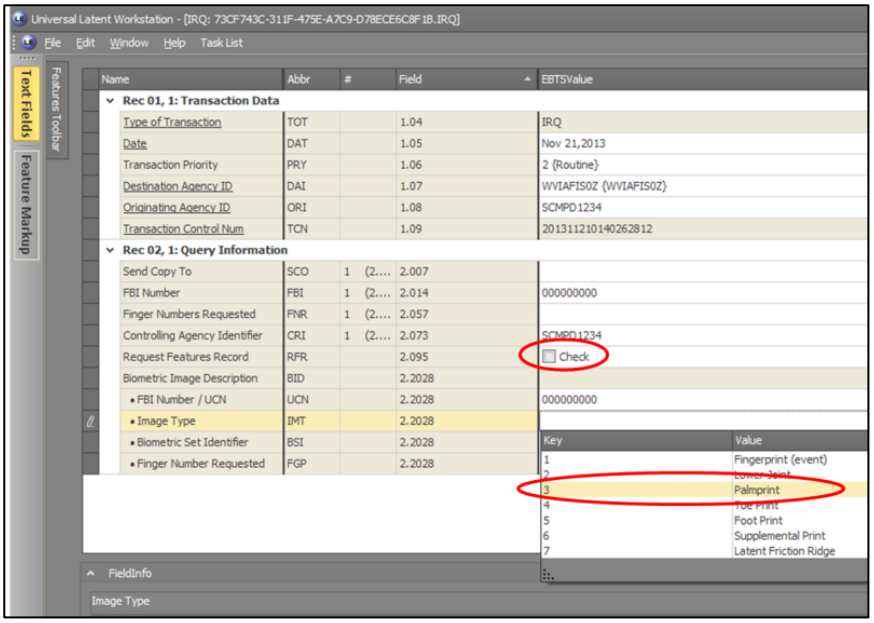
If <u>not</u> associated with a case:



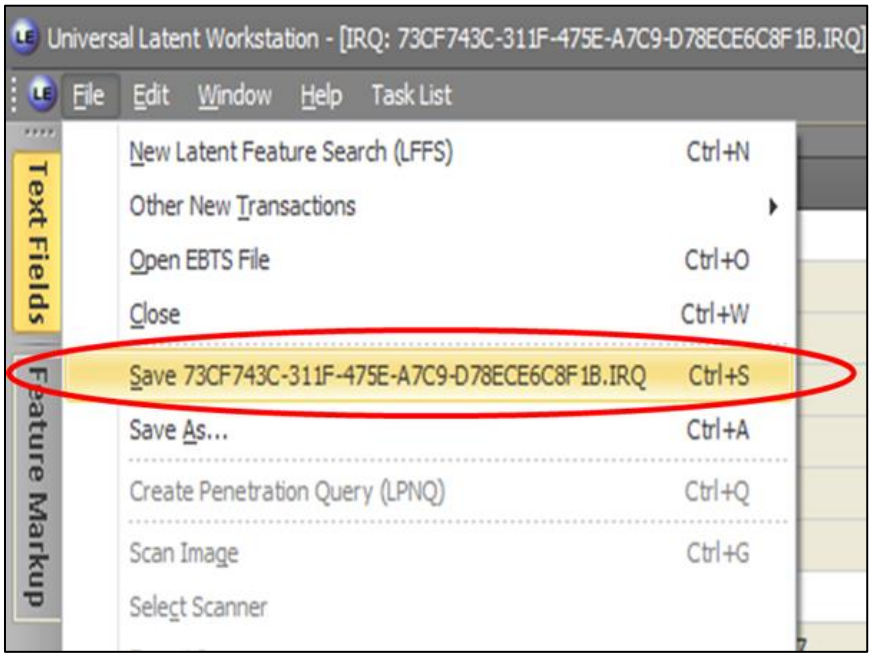
B. Once LE is open,

1. Uncheck RFR (failure to do so will result in palm images which can't be opened by the user because NGI returns multiple Type-9 images with the IDC value)

2. Choose **3-Palmprint** from the Image Type drop-down

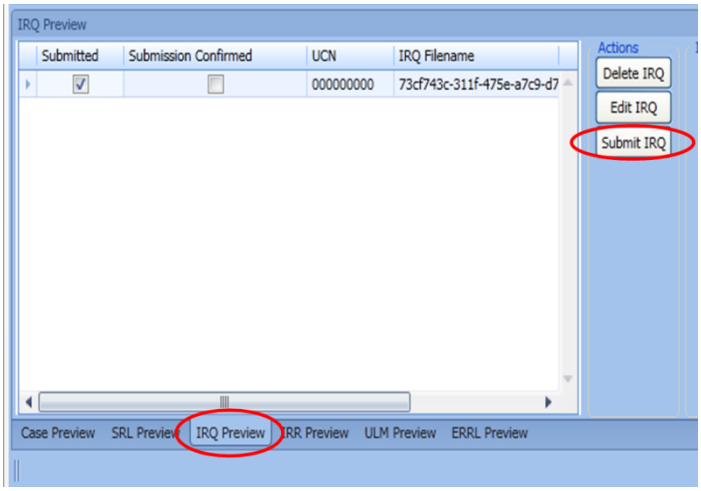


C. File > Save > 1234-Funky-File-Name and then Exit LE

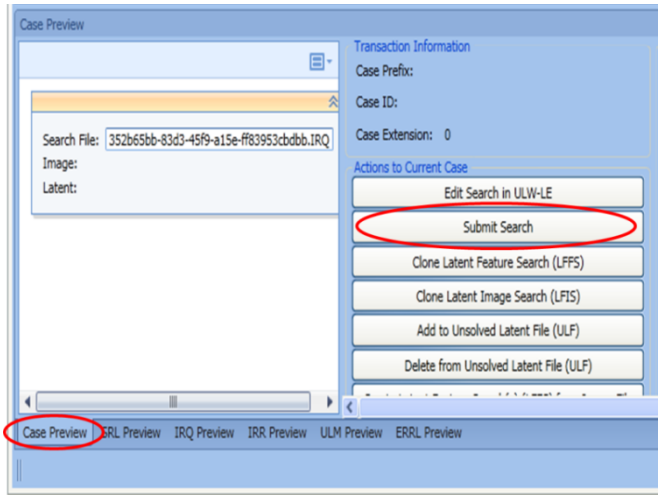


D. Click the appropriate Submit Button

If associated with a case:



If <u>not</u> associated with a case:



E. IRQ is prepared in the Outgoing folder and is ready to be submitted to NGI via your agency's standard method of connectivity

NGI INFORMATION

15. File Penetration Settings

With NGI, stringent file penetration thresholds are no longer a requirement; however, penetration rates of 50% or less are recommended. This will decrease NGI response times by minimizing system resource demands and increase accuracy by reducing the size of the search gallery.

NOTE: When a user enters a palm submission, the penetration rate remains at 100%. Please be advised that this is not an error as, currently, penetration rates are unavailable for the National Palm Print System (NPPS).

16. Finger Position - Search and/or Add to ULF - "Unknown Finger" Defaulted

In the ULW's File Penetration Tool, the Finger Position of "Unknown Finger" is selected by default.

If you wish to search and/or deposit to the ULF as a palm value only, open the Finger Tab and uncheck "Unknown Finger".

Only for those instances when the examiner is uncertain from which portion of a hand the latent image is from, should both "Unknown Finger" and "Unknown Palm" be selected.

17. More candidates than requested – SRL Response

The NGI will only return one image per individual UCN within a SRL. When a candidate list contains one individual listed multiple times, you will only receive the highest ranked image for that individual UCN. Any subsequent hits to that same individual UCN in the candidate list will not return an image - instead, a red "X" will appear indicating an image was not returned for that individual. If you would like to see that particular record, you may request it from NGI by generating an IRQ using the specific Biometric Set Identifier (BSI).

18. Unknown Friction Ridge – Response

Within the NGI, friction ridges are divided into three types: tenprints, upper palms, and lower palms. When a user searches more than one type (e.g., "Unknown Friction Ridge" [2.074 FGP = 18]) and the Number of Candidates Returned (2.079 NCR) is 20, the NGI returns an "Unknown Friction Ridge" response consisting of 60 total candidates:

- The first 20 candidates are tenprint
- The second 20 candidates are upper palm
- The final 20 candidates are lower palm (including writer's palms)

Any time the NCR is modified, you can still expect to receive three times that number of candidates within your "Unknown Friction Ridge" response. For example, if NCR is changed to 10, then:

- The first 10 candidates are tenprint
- The second 10 candidates are upper palm
- The final 10 candidates are lower palm (including writer's palms)

19. Supplemental Searches

Users should submit searches of the upper palms (2.074 FGP = 26 "Right Upper Palm" and/or 2.074 FGP = 28 "Left Upper Palm") when searching finger segments.

20. Region of Interest - Minimum and Maximum Size

Latent Friction Ridge Features Search (LFFS) features searches require that a Region of Interest (ROI) be designated. When the submitted ROI is too large, the NGI will return an SRL without images. Users should be aware of the following NGI system design minimum and maximum limitations:

- The maximum ROI for a finger is 1.2" x 1.2". This equates to 600 pixels x 600 pixels @ 500 ppi, or 1200 pixels x 1200 pixels @ 1000 ppi

- The maximum ROI for a palm is 4.8" x 4.8". This equates to 2400 pixels x 2400 pixels @ 500 ppi, or 4800 pixels x 4800 pixels @ 1000 ppi

- The minimum ROI for both finger and palm images is .384" x .384". This equates to 192 pixels x 192 pixels at 500 ppi, or 384 pixels x 384 pixels at 1000 ppi

Be cautious of your image size when using the "Entire Image is ROI" option. To determine the size of your irregular ROI:

A. Click on the CROP button (but do not crop)
B. Draw a rectangle just large enough to contain the ROI
C. Look in the CROP pop-up box - the dimensions of the crop will be displayed
D. Click CANCEL

21. Legacy Civil Record IRQ Failure

Legacy civil record image requests (i.e., IRQs) using "V" numbers will fail to return Image Request Responses (IRRs). Users should report the error to the Latent and Forensic Support Unit < IST@LEO.GOV > who will then provide the Civil Record's new Universal Control Number (UCN). IRQs using the new UCN should successfully return the IRR.

Additionally, IRRs will not return the subject's biographic data. You can obtain this information by contacting the Latent and Forensic Support Unit < IST@LEO.GOV >

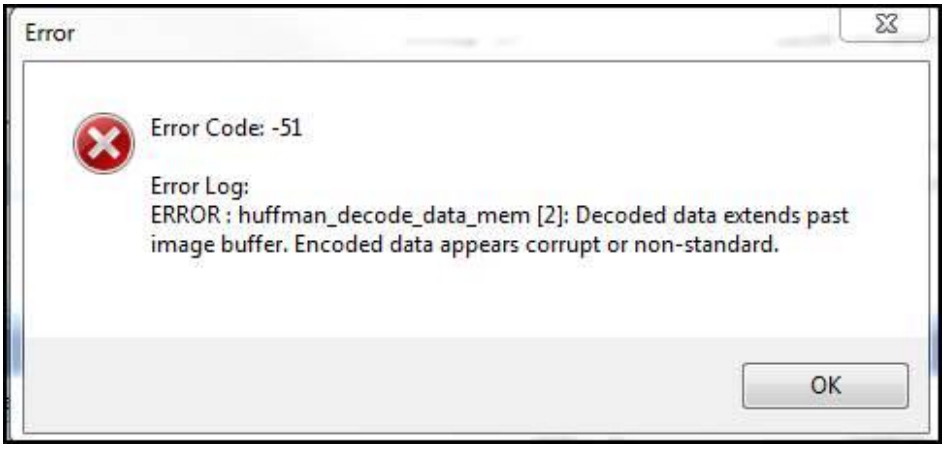
22. ULM Notification Issues

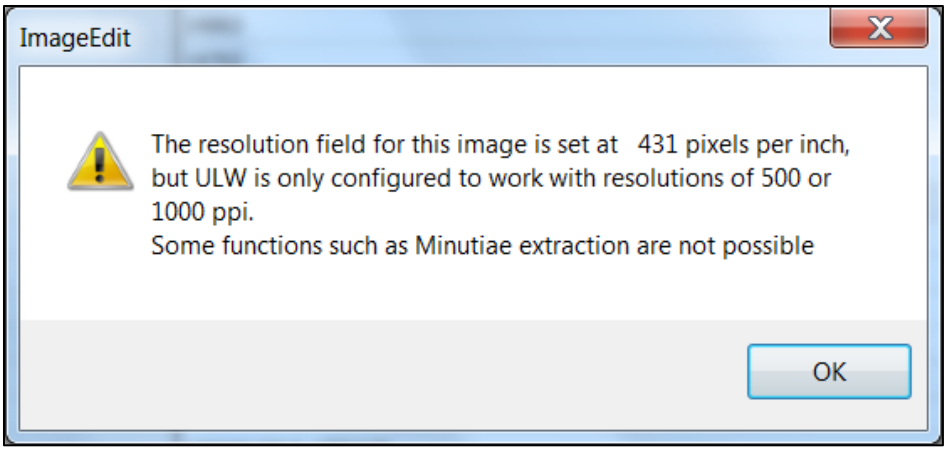
An Unsolved Latent Match (ULM) notification is sent to the owner of an unsolved latent record when newly submitted criminal, civil, or latent friction ridge searches match the unsolved latent case image.

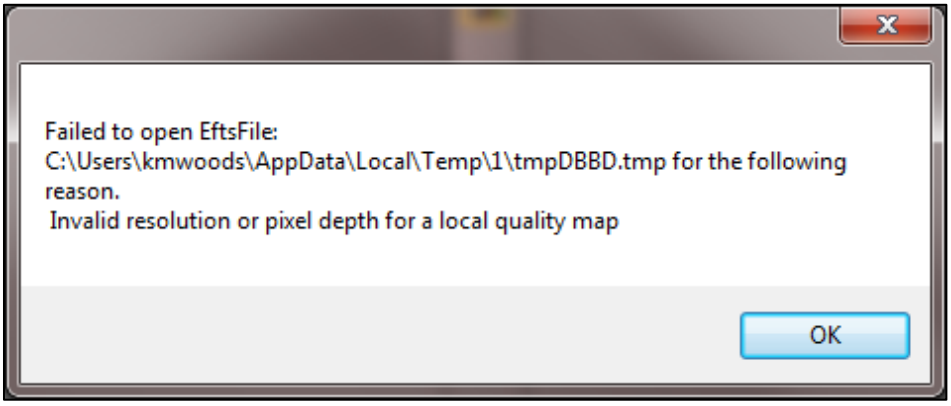
If you deposit in the ULF, but have never received a ULM notification, please contact the Latent and Forensic Support Unit < IST@LEO.GOV > for assistance.

23. Invalid Image Resolution

All of the error messages shown below have been associated with invalid candidate image resolutions returned in SRLs and IRRs. At this time, the images can be viewed in the Transaction Manager using View Images and in the Latent Editor (with a pop-up displayed for every image noting the error). The SRL images cannot be viewed in CT; however, as a workaround, users can submit an IRQ for the candidate UCN and then use the IRR in the CT for comparison purposes. See examples below:







24. Grey, Blank, or Black Images

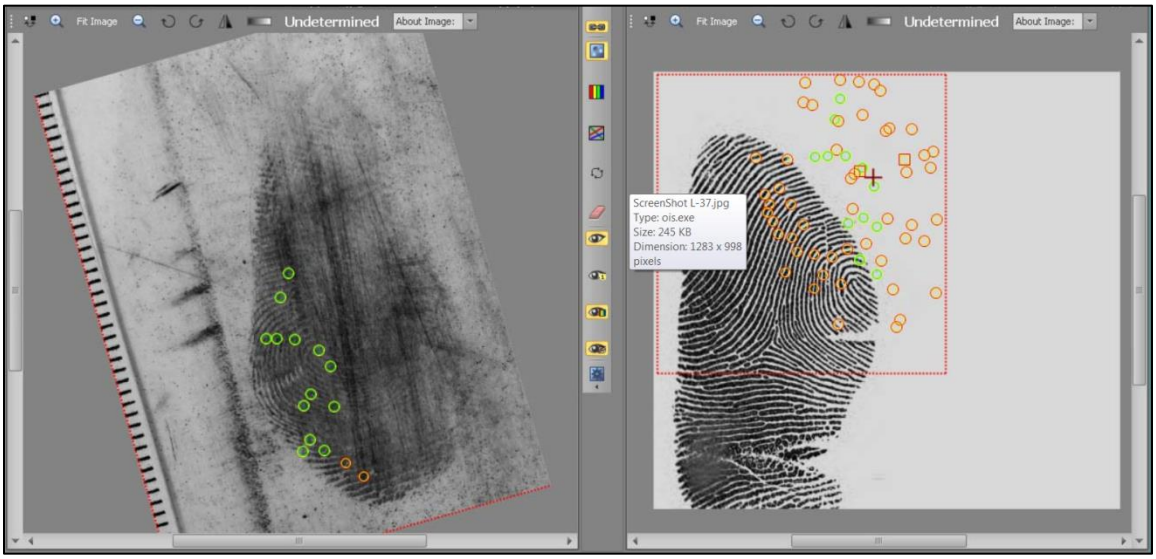
When attempting to open a ULM, SRL, or IRR, users have experienced issues whereby tenprint images cannot be viewed.

- **Grey Images**: by default, ULW is deployed with the NIST decoder. When the NIST decoder attempts to open files encoded with a non-conforming Wavelet Scalar Quantization (WSQ) compression algorithm, **grey** images result. NIST cannot change their decoder to enable ULW to open these images and the non-conforming WSQ software cannot be incorporated into a future ULW release. Therefore, neither current nor future versions of ULW will be able to open these particular images. However, users who have purchased AWARE wsq.dll compression software should be able to open the images. Users encountering unresolved grey image complications should contact the Latent and Forensic Support Unit < IST@LEO.GOV > for assistance.

- **Blank or Black Images**: these images contain incorrect compression ratio values. It is anticipated the next ULW software release will open these files without issue. Users encountering unresolved blank/black image complications should contact the Latent and Forensic Support Unit < IST@LEO.GOV > for assistance.

25. Misaligned Minutiae

Instances of misaligned minutiae have been observed in some SRL's when features are requested (2.095 RFR = yes). It has been determined that this is an issue resulting from incorrect Type-1 NSR/NTR compression information being associated with that specific candidate. When the actual resolution of the image is not accurate, precisely overlaying the features returned is impossible since the offsets to the minutiae locations are based on the resolution of the image returned (see example below). Please report the FBI/UCN numbers of these misaligned minutiae candidates to the Latent and Forensic Support Unit < IST@LEO.GOV >.



26. Direct Latent Connect users not receiving latent response messages

Please be cognizant of your Law Enforcement Online (LEO) email capacity as it will prevent the receipt of NGI latent response messages if you are using Direct Latent Connect (DLC).

When the incoming LEO mailbox exceeds the **300MB** maximum capacity quota, LEO provides a limited grace period by queueing email for seven days. If the mailbox size is reduced within that time period, the queued mail will be delivered. After day seven, any additional emails will not be queued or delivered to the intended recipient. Instead, a failed delivery message, including the queued email, will be returned to the original sender indicating a failed email delivery attempt.

To correct, delete any unnecessary items in both the inbox and sent mailbox and, finally, empty the LEO trash.